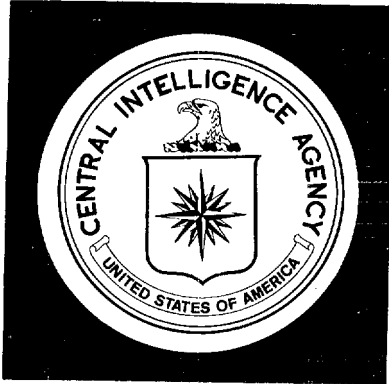


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## *China: Energy Supply Problems*

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March 1974

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## CHINA: ENERGY SUPPLY PROBLEMS

### CONCLUSIONS

1. China's ambitious plans for expanding industrial production are running up against shortages of coal and electric power.

2. Coal, which accounts for nearly four-fifths of all primary energy produced in China, will continue to be in tight supply over the next several years. Recent increases in output have been possible only because existing facilities have been operated intensively, sometimes under conditions of rapidly diminishing returns. Construction of new, modern mines has been insufficient to keep abreast of industry's ever-growing demand for coal.

3. Growth in production of electric power has been hampered not only by lack of coal but also by technological backwardness, lack of a unified transmission network (which would permit fuller use of installed capacity), and the remote location of many prime hydroelectric sites.

4. In contrast, the infant petroleum industry has been advancing rapidly from its small base and has recently become an earner of much-needed foreign exchange. As China's stock of industrial and transportation equipment continues to grow, and as China builds petrochemical industries, domestic demand for petroleum will rise sharply. Nonetheless, petroleum will remain far behind coal in China's energy picture. Peking has neither the means nor the motivation to make a deliberate switch in its industrial plant from coal to oil.

5. The government has not seen fit to make wholesale diversions of resources in an effort to ease the energy bind. Resources are needed elsewhere. In a series of major economic decisions in 1972-73, Peking acted to guarantee the stability of the agricultural sector by greatly increasing the import of grain and cotton, by contracting for a billion dollars worth of Western fertilizer and artificial fiber plants, and by relaxing its policy of no foreign debt to finance these purchases. Purchases of foreign mining and electric generating equipment -- while substantial by prior standards -- have had to play second fiddle to these other needs. Furthermore, a large portion of the equipment ticketed for the energy sector will not come into operation for several years.

Note: Comments and queries regarding this publication are welcomed. They may be directed to [REDACTED] of the Office of Economic Research, Code 143, Extension 5711.

## DISCUSSION

### Background

6. The Peoples Republic of China used an estimated 398.1 million metric tons (SFE basis)<sup>1</sup> of primary energy in 1973. China is in the same class as an energy consumer as Japan, West Germany, and Great Britain; only the United States and the Soviet Union use more (see Figure 1). Industry is the main consumer of China's energy. Other users are the transportation, construction, communications, and military sectors. Except for minimal use in domestic heating, lighting, and cooking, private consumption is negligible.

7. Coal accounts for almost four-fifths of all primary energy produced. It provides directly or indirectly 84%-90% of the power for industry, generates 75% of all electric power, provides almost all of the heat for the urban population, and powers 80% of the railroad locomotives. In addition, coal is a raw material for the rapidly developing chemical fertilizer and other petrochemical industries.

8. Other significant contributors to China's primary energy output are petroleum and hydroelectricity. The petroleum industry in 1973 provided about 19% of total primary energy output. Hydroelectricity's contribution to the total primary energy output in 1973 was probably 3%. China at present has no nuclear powerplants.

### Growing Energy Bind in 1973

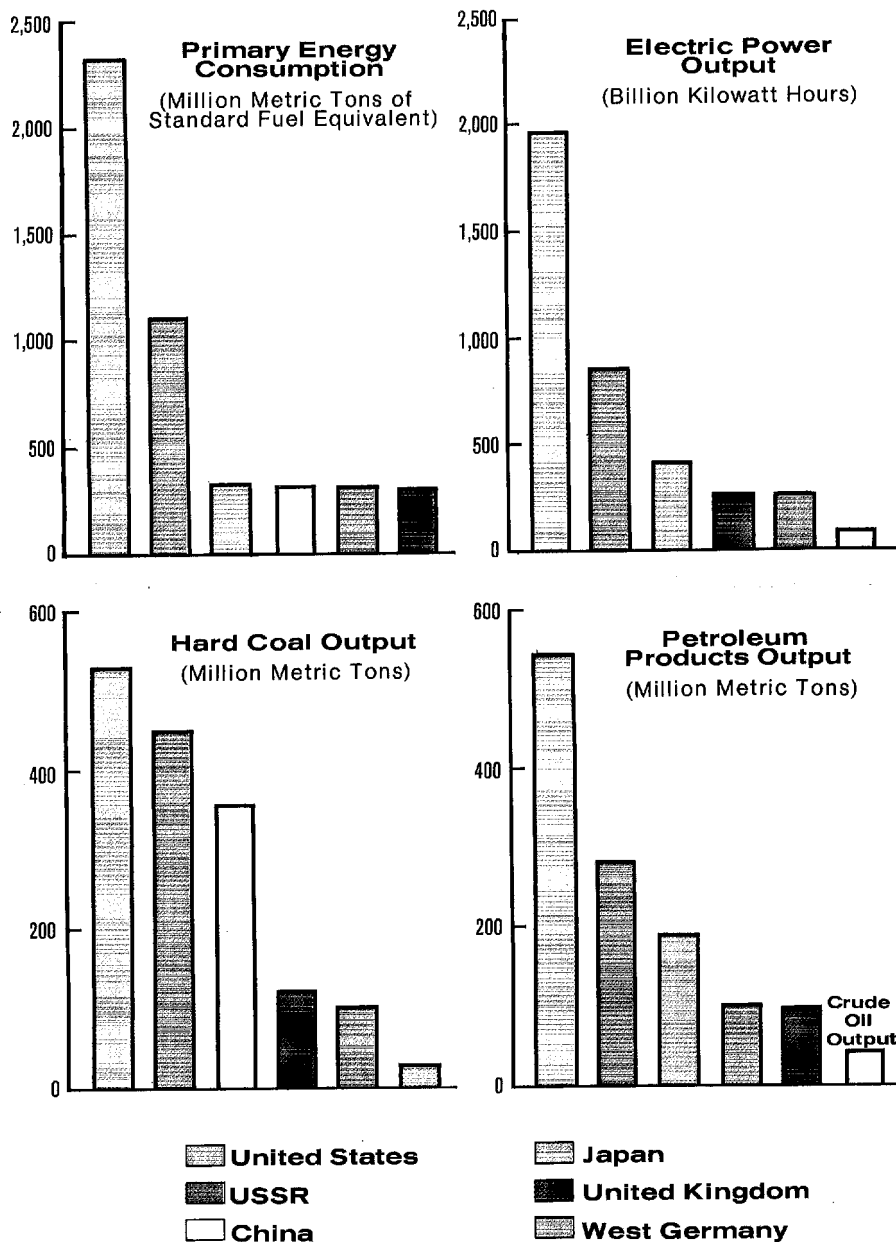
9. In the 1950s, Soviet assistance coupled with a vigorous domestic push resulted in a rapid expansion of coal and electric power capacity. Then, in the 1960s, emphasis shifted to industrial branches such as electronics, metallurgy, chemicals, and armaments. The supply of coal and electric power has been tightening in recent years, particularly in 1973.

10. Practically no data on energy supplies surfaced in 1973. Evidence had to be read between the lines. Party Central Committeeman Tseng Ssu-yu admitted "tension" in coal and electricity supplies. The 1973 year-end claims of industrial achievements omitted mention of coal despite its fundamental importance. Similarly, national claims of electric power output were restricted to a comparison with an unspecified 1965 base. "Coal conservation" campaigns -- a regular feature in the Chinese press for years -- also received unusual emphasis in 1973. During the year the regime conceded that demand for anthracite and coking coal "could no longer be met."

1. Standard Fuel Equivalent (calorific value of 7,000 kilocalories per kilogram).

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## Energy Comparisons, 1972



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Some 300 plants representing 44% of China's total small nitrogenous fertilizer plants were converted to use of locally produced coal as supplies of coal from large, national mines dwindled. The city of Sian, despite its location near the major coalfields of north China, rationed coal for individual use during 1973.

11. The electric power industry, heavily dependent on coal for fuel, began converting thermal powerplants from coal to oil or a coal-oil combination.

In addition to coal supply problems, electric power production was constrained by generally inadequate generating capacity and underdeveloped power transmission networks. China has only small regional grids and thus cannot improve operating efficiency by dovetailing the needs of different regions. Irregularities in electricity supply in urban areas, apparently caused by diversions of power from private to industrial use, continue to be reported. In Liaoning, one of the provinces most abundantly supplied with generating facilities, a form of rationing has been in force for agriculture as well as industry since 1970.

#### Coal Capacity and Output

12. From 1950 to 1973, coal production increased from a mere 43 million tons to 378 million tons (see Appendix A). China now ranks third in world production, behind the United States and the Soviet Union, as shown in the latest available figures:

	Million Tons	
	1971	1972
United States	503	529
USSR	441	451
China	335	357
Poland	146	151
United Kingdom	147	120
West Germany	111	103

13. Chinese officials have told foreign visitors that the development of coal and petroleum resources is the fifth in a list of five priorities in the Fourth Five-Year Plan (1971-75). The key word is "development." Unable to marshal the resources for the wholesale modernization of the coal industry, Peking has ordered more intensive exploitation of existing mines. Only a few large, modern mines have been brought into production.

The capacity of large new mines as a percent of national coal output of the preceding year is as follows<sup>2</sup>:

1969	2.8
1970	1.7
1971	Unknown
1972	1.6
1973	0.6

14. Production of coal has been concentrated in the north and northeast, where the best quality deposits and most of the big industrial centers are located. Until a few years ago, enough coal came from the large northern mines to ensure supplies for important industries throughout most of China. As demand for coal began to exceed the capabilities of the northern mines, policy changed in 1969 to encourage exploitation of secondary coal deposits in all parts of China. The coal from secondary deposits -- mainly produced by small, local mines -- reached 25% of national output in 1970 and may have been as much as 30% in 1973. Peking hopes that the southern provinces will develop enough new deposits to achieve self-sufficiency in coal within the next few years.

15. In the period 1970-73 -- when Peking was stressing the more intensive working of existing mines and the opening of small mines -- the rate of increase of coal production fell behind the average annual rate of growth of overall industrial output:

	Percent	
	Coal	Industry
1970	20.2	18.8
1971	8.1	12.9
1972	6.6	8.5
1973	5.9	8.5
1970-73	10.0	12.1

#### Coal-Mining Equipment

16. Chinese announcements highlight output of coal-mining equipment rather than of coal itself. Claims have included a gain of 68.9% in 1971 over 1970 in national production of coal-mining equipment and a 78% increase in Shanghai's output in the first half of 1973, compared with the first half of 1972. These high percentage claims seem mostly the result of a start from a low base.

2. For a listing of the new mines, see Appendix B.



17. Peking began to seek coal-mining equipment from foreign suppliers in 1972. Since the beginning of 1972, more than \$90 million worth of coal-mining equipment has been ordered. For example, long-wall equipment ordered from Dowty Mining and Gullick Dobson of Great Britain (see Appendix C) will be able to mine five "faces" to yield up to a million tons of coal a year.

18. New domestic and foreign equipment at present translates mainly into more intensive exploitation of existing mines. Added equipment cannot alter the reality that new underground mines require 4-7 years to build from scratch. Peking will not be able to overcome the tight coal situation by output from new, modern mines for at least the next 5 years, even if they receive an immediate green light. Proved coal reserves pose no problem, being estimated at 70 billion-80 billion tons. The Chinese make only small use of strip mining, although the geological formations in some parts of north China appear favorable. The Fushun and Fou-hsin areas of Manchuria each contain a large strip mine, and a new strip mine of unknown size was opened in Ninghsia Autonomous Region in the northwest during 1973.

#### Electric Power Capacity and Output

19. Since the Communist take-over of 1949, electric power output has increased more than 22-fold -- to an estimated 101 billion KWH in 1973. Electric power output more than doubled between 1965 and 1971. The rate of increase fell to 9.4% in 1972 and dropped further to 8.6% in 1973. This slowing down has paralleled the decline in the average annual rate of increase in industrial output:

	Percent	
	Electric Power	Industry
1970	20.0	18.8
1971	18.1	12.9
1972	9.4	8.5
1973	8.6	8.5
1970-73	13.9	12.1

20. In 1973, about 10% of the total national coal output was needed to generate about 75% of national electric output. An increase in the share of coal given to the power industry would have to be at the expense of other sectors, such as the chemical and iron and steel industries. The share of electric power generated by oil-fired plants -- presently about 15% of the major powerplants -- cannot be increased overnight or without incurring heavy capital expenses.

25X1D 21. The electric power industry is bumping up against major technological obstacles to further rapid growth. For one thing, China's generating efficiency is far below world standards. In the United States the economies of scale possible with large generators have led to widespread use of 1,000-MW generators. In contrast, Chinese claims center on 125-MW and 300-MW thermal units as illustrations of the latest Chinese technological achievements. [REDACTED] five plants are being equipped with 125-MW units produced in Shanghai, while one 300-MW unit reportedly has been installed.

22. Chinese standards in power transmission are even lower than in generation. Transmission lines are limited to 220-KV systems with practical transmission distances of about 150 miles. One experimental line of 330 KV has been installed. In contrast, the United States commonly uses 500-KV lines, which carry power 500-600 miles, and is building 765-KV lines with a 1,300- to 1,400-mile range.

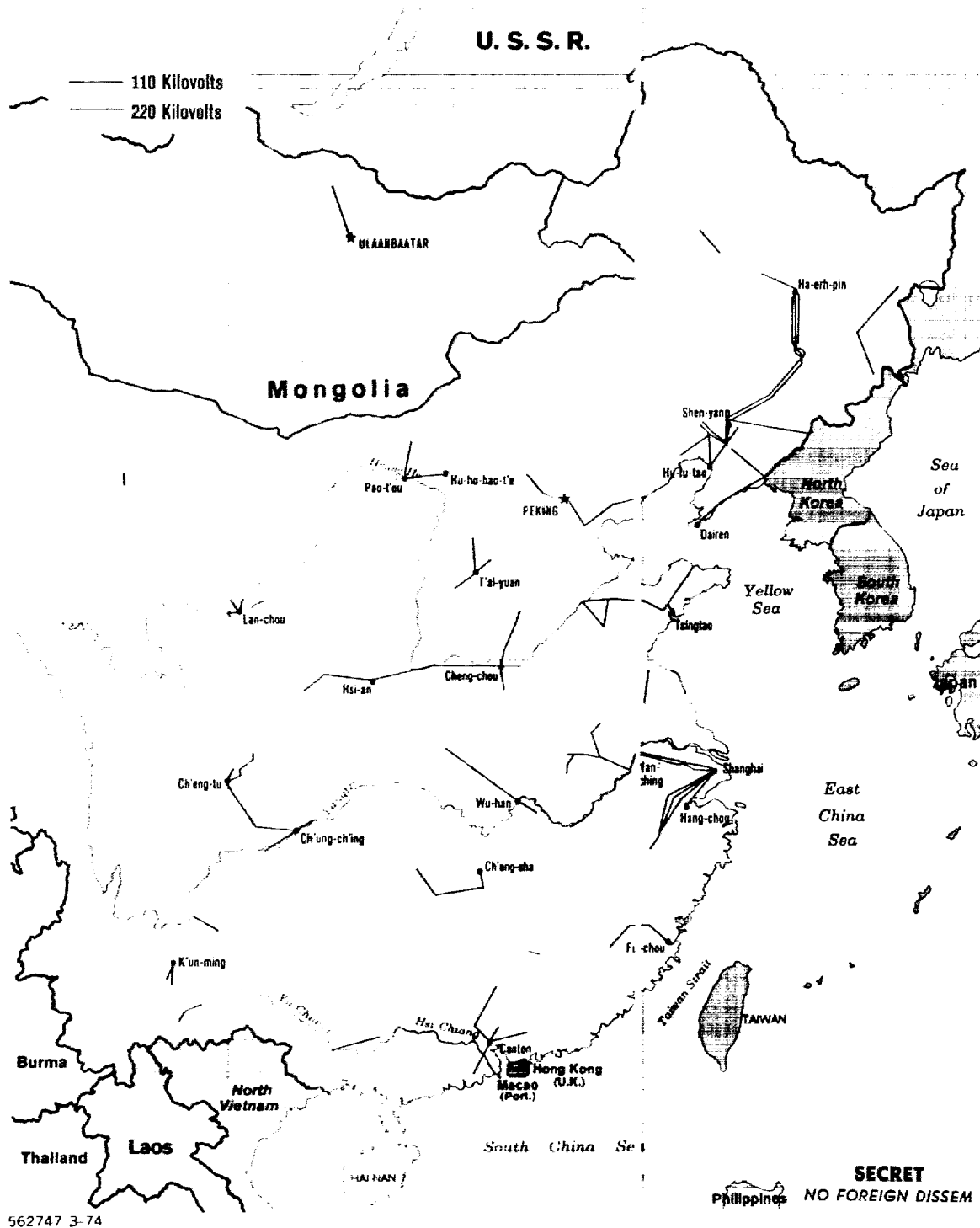
25X1C 23. One US firm has concluded from its negotiations with the Chinese for sales of power equipment that there are 30 or more "local" transmission grids in China. [REDACTED]

24. Underdeveloped transmission networks prevent a region experiencing light demand from helping an overloaded neighboring region. China is forced to maintain unusually large numbers of stand-by generating units as a consequence. The 11 or more gas turbines bought from John Brown and Company, Scotland, since 1972 apparently have been put to stand-by use in the Peking area.

25. The sparsity of transmission lines also means that most rural areas are left to their own resources to obtain power for pumping, threshing, small industries, lighting, and public radio listening posts. Only a few of the major river basins have power grids to tap electricity from urban powerplants for farm tasks. Most of rural China depends on the 50,000 small hydroelectric stations built and operated by the various localities. These stations are 1 to 500 KW in installed capacity, with the average size running around 30 KW. They provide tiny quantities of electricity where none would otherwise be available and enable Peking to claim that the majority of rural areas are "electrified." In addition to being severely restricted in output, these stations have low mechanical reliability and vulnerability to seasonal changes in water flows.

26. International experience suggests that rapidly growing economies should have a ratio of about 1:1.4 between the rate of growth of overall

### Identified Major Electric Power Transmission Line ;



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industry and of electric power.<sup>3</sup> The ratios for China in 1970, 1971, 1972, and 1973 have been 1:1.06, 1:1.40, 1:1.11, and 1:1.01, respectively. These ratios by themselves suggest insufficiency of electric power during those years. With the concurrent problem of inefficient long-distance power transmission in China, recurrent local and regional power shortages were to be expected.

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Ten percent is about the rate achieved during 1972, when the rate of overall industrial growth attained was 8.5%. The statement implies that Chinese industrial growth will continue to increase at these rates for at least a few years to come, in contrast with the 20% achieved in 1969 and in 1970.

#### Role of Oil

28. China, one of the few major nations with adequate supplies of oil, has boosted production from 5 million tons (100,000 b/d) in 1960 to 53 million tons (1 million b/d) in 1973. Oil is now being used as a ready source of foreign exchange. Exports to Japan in 1973 averaged 20,000 b/d and may reach as much as 100,000 b/d in 1974. Rather than undergo the formidable costs of a wholesale shift from coal to oil in generating electric power at home, Peking is making the sound decision of selling oil to Japan, which has an almost insatiable need for petroleum as an industrial fuel. Higher export earnings will increase China's ability to purchase industrial equipment, including equipment to ease its tightening energy situation.

#### Imports of Foreign Power Equipment

29. The largest number of Chinese purchases of foreign power equipment since 1972 has been for the electric power industry (see Appendix C). As of the end of January 1974, more than \$150 million had been earmarked for at least nine orders of generating equipment and plants. Negotiations were under way on at least 18 other deals valued at more than \$366 million. The equipment and plants bought up to now have been types within China's capability to build. The items under negotiation, however, include large-scale generating units and atomic power facilities which exceed current Chinese design and manufacturing capabilities. China's

3. The relationship between industrial production and electric power production in 1961-65 in 12 countries shows that electric power increased at a faster rate - 1.4 times on the average - than industrial production in all countries.

requirements for new generating equipment will outrun domestic production by an estimated 1,000 MW a year by the end of the decade.

30. Since the beginning of 1972, China has bought more than \$90 million of coal-mining equipment from Great Britain, West Germany, and the United States. All purchases have involved equipment used directly in the cutting of coal from seams and its conveyance out of the mines. Most of this mining equipment can be manufactured by the Chinese themselves.

31. Purchases of petroleum equipment since the beginning of 1972 total more than \$178 million. Except for exploitation of deep, offshore oil deposits, China has demonstrated that it does not require much foreign help in promoting rapid growth in the petroleum industry.

32. At present, imports of grain, cotton, and equipment and plants for the fertilizer and synthetic fiber industries enjoy the highest priority in Peking's use of scarce foreign exchange. Imports of machinery for the fuel and power industries are on a highly selective basis.

#### More Hydroelectric Power?

33. China's estimated hydroelectric potential of more than 500 million KW is 17 times the existing national installed capacity, hydro and thermal combined. Less than 1% of the potential has been tapped. Suitable sites tend to be concentrated in the west, where industrial consumers of electricity are few. In addition, seasonal fluctuations in water flow threaten damage to dams during the high seasons and lead to inadequate water levels for generation purposes during the low seasons. Storage reservoirs to even out annual flows run up the complexity and costs of projects.

34. The Yellow River, a prime candidate for hydro development because of its proximity to many industrialized areas, presents another problem -- an annual average of more than 40 billion cubic feet of silt.

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[REDACTED] An "experimental" project said to be under way on the middle reaches of the river may be a new attack on the silt problem.

35. In summary, the problems of water flow, locations, and costs preclude waterpower as a solution to energy problems in the short run. The regime has shown little enthusiasm to move in this direction. Large projects started as far back as the 1950s have yet to be completed. For

new projects, Peking says only that a "batch" of large hydroelectric stations are being constructed, designed, or surveyed on the Yellow River. The share of hydro equipment in total generating capacity thus is likely to fall below the present 30%.

#### **Atomic Powerplants**

36. Peking may soon buy an atomic powerplant in the 600-MW range from a West German or American firm. One plant [REDACTED] under construction northwest of Peking may be the first Chinese attempt at constructing an atomic powerplant of domestic design. Atomic powerplants, even if started now, could not come on stream until the turn of the decade. China is unlikely to have an appreciable number of such plants until well beyond that time.

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APPENDIX A

CHINA: ELECTRIC POWER, COAL, AND PETROLEUM OUTPUT

	Electric Power			Coal Output (Million Metric Tons)	Crude Oil Output (Million Metric Tons)	Primary Energy Production (Standard Fuel Equivalents <sup>1</sup> Million Metric Tons)
	Output (Billion KWH)	Installed Capacity (Million KWH)	Average Annual Hours in Use			
1950	4.6			42.9		
1955	12.3			98.3		
1960	47			280	5.3	
1965	42	13.7	3,066	220	10.8	
1966	50	17.5	2,857	240	14.0	
1967	45	19.8	2,331	190	14.0	
1968	50	20.8	2,403	205	15.0	
1969	60	24.0	2,500	258	20.3	
1970	72	25.6	2,813	310	28.5	305.5
1971	85	26.3	3,232	335	36.7	337.3
1972	93	27.4	3,394	357	42.6	371.2
1973	101	28.8	3,507	378	53.0	398.1

1. Calorific value of 7,000 kilocalories per kilogram.

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APPENDIX B

NEW LARGE COAL MINES ANNOUNCED BY CHINA, 1969-73<sup>1</sup>

Province	Mine	Annual Capacity (Thousand Metric Tons)
Anhwei	Huai-pei	1,000
Honan	Ping-ting-shan No. 6	900
Hopeh	T'ang-shan	1,000
	Cheng-feng	310
	Unknown	500
	Sun-chuang	600
	Ching-hsing-chia-chuang	650
Hupei	Shengli	"Large"
Inner Mongolia	Hai-tai-shan	"Large"
	Wu-hu-shan	"Large"
Kansu	Yao-chieh Bureau	900
	Tzu-yao	Unknown
Kiangsi	Tung-shan No. 1	"Large"
Kiangsu	Chung-shan	300
	Unknown	450
Kirin	Yen-pien	"Large"
	Liao-yuan Bureau	450
Kweichow	Run by Peoples Liberation Army <sup>2</sup>	1,200
Liaoning	Hsiao-ming	600
	Ta-lung	"Large"
Ninghsia	Ta-feng <sup>3</sup>	Unknown
Shansi	Unknown	3,000
	Kao-yang	1,200
Shensi	Nan-k'ou	250
Sinkiang	Ha-mi	"Large"

1. Data for 1971 are not available. Judging by the three mines announced during 1972 and four during 1973, the number of new mines for 1971 was probably less than half a dozen.

2. Produces coking coal.

3. Open-pit anthracite mine.



APPENDIX C

CHINESE DEALINGS IN COAL MINING, ELECTRIC POWER, AND OIL DRILLING EQUIPMENT  
 1972-74

Country	Company	Equipment	Million US \$	Comments
<b>Coal</b>				
West Germany	Hemsheldtwerk	Mechanized coal face equipment	13.7	Sold Oct-Nov 73
	Eickhoffwerk Bochum	Fully mechanized coal face equipment	Unknown	10 contracts Sep-Oct 73
United Kingdom	Dowty Mining	Coal cutters, conveyors, roof and ground support equipment, signaling equipment, cables, methanometers	30	Sold Jul 73
	Dowty Mining	Mining machinery	5.18	Dec 73 contract
	Gullick-Dobson	Shearers, conveyors, signaling equipment, long-wall roof supports	20	Sold Jun 73
United States	Bucyrus Erie	Electric shovels, blasting drills	20	Contract due Dec 73
	Reed Tool	Rock bits	1	Sold Jan 74
<b>Electric Power</b>				
France	Alsthom et Creusot-Loire	Two Kaplan turbine hydroelectric stations	10	Sold late 72
	Alsthom, Paris	A 300-MW coal and fuel oil powerplant	Unknown	Intended to send a delegation to Peking for discussions Jun 73
	Licensee of a US company	600-MW coal boiler	Unknown	Under negotiation as of Dec 73
France-Germany	CEM and Sulzer	300-MW powerplant	Unknown	Proposal sent to China Nov 73
West Germany	Maschinenfabrik, Ausburg-Nurnberg	A 300- 600-MW steam power station	Unknown	Proposal sent to China Jan 73
	AEG-Kanis Turbinenfabrik	25-MW gas turbines	Unknown	To see visiting Chinese delegation Jan-Feb 73
	Demag A.G.	Cracked gas compressors with steam turbines	Unknown	Nov 73 contract
	Kraftwerk Union A.G.	300-MW brown coal plant	Unknown	Engineers in China in late 73 to discuss plans

Country	Company	Equipment	Million US \$	Comments
<b>Electric Power (Continued)</b>				
United Kingdom	John Brown	Eleven 20-MW gas turbines	18	Negotiations for first five concluded Feb 72
		15 gas turbine generators	26.4	Offered Dec 73
Italy	Gruppo Industrie Elettromeccaniche per Imperianti all'Estro, Milan	A 125-MW steam turbine, associated condensers, heat exchangers, cycle tubing	8.8	Sold Dec 72
	GIESTER	300-MW powerplant	Unknown	Proposal sent to China Sep 73
	Licensee of a US company	Two 320-MW coal boilers	20	Contract late 73
Japan	Hitachi	Two thermal powerplants, total capacity 250 MW	15	Aug 72
		Two 135-MW steam turbine generators	15	May be same as sale of Aug 72
		Two thermal powerplants	71.7	Sep 73
	Fuji Electric	200-300-MW generators	Unknown	Negotiating 73
Norway	Vaapenfabrikken Kongsberg	At least one KG 2-3H gas turbine	Unknown	Sold prior to Jun 73
Sweden	Karlstade Mekaniska Verkstaeder and ASEA	Three sets of generators for hydro-electric stations	5.9	Sale announced Jul 73
	Allmana Svenska Elektriska Aktiebolaget (SAEA)	Hydro-turbine generator sets	Unknown	Offered to China Jul 73
Switzerland	Brown-Boveri-Sulzer Turbomaschinen (BST)	Ten stream-driven process compressor packages	10	Possibly sold Dec 72
United States	General Electric	A 650-MW thermal power station	60	Responding to a Chinese proposal
		300-MW and 600-MW steam turbines	Unknown	Responding to a Chinese proposal
		Modern gas turbine plant for manufacturing 25-MW and 50-MW turbines	70 over 10 years	Responding to a Chinese proposal

Country	Company	Equipment	Million US \$	Comments
<b>Electric Power (Continued)</b>				
		600-MW range nuclear powerplant	200	Detailed proposal drawn up in response to a Chinese request
		A 300-, 500-, and 600-MW coal boiler	Unknown	Chinese requested proposal in late 73
	Westinghouse	Three W-1101 gas turbine generators	Unknown	Contract signing expected Jan 74
USSR		Four steam turbines	Unknown	Sold 72
<b>Oil Drilling</b>				
Denmark	WECO Shipping	Eight oil rig support vessels for servicing deep-sea oil rigs	20	First unit due in China early 74
France	Compagnie Generale Geophysique	Services of a seismic vessel with crew	2	Contract signed Sep 73
West Germany	Demag AG	Compressors for refineries and petrochemical plants	1.15	Sold Dec 73
Netherlands	N.V. Industriele Handelscombinat	Four trailing suction hopper dredges	39.3	Contract signed early 73
Japan	Japan Drilling Co.	Used offshore drilling rig	8.5	Sep 72
	Asian Offshore Drilling	Jack-up offshore drilling rig		President of AOD to Peking in early 73 to negotiate
	Nippon Kokan	Offshore 60-cm oil pipeline		Consultations in Peking in 73
		Eight self-propelled bucket dredges	53	Contract Jun 73
	Nippon Steel, Mitsui, Teikoku Oil	Offshore 120-cm pipeline	Unknown	Discussions in Peking Oct 73
	Mitsubishi Heavy Industries	No. 2 Hakuryu used heavy duty drilling rig	21.4	Contract signed Dec 73
	Hitachi Shipbuilding and Engineering Co.	Five equipment-transport vessels for offshore drilling	Unknown	Ordered autumn 73
		Two 9,000-hp oversized tugboats	16.6	Ordered late 73
	Sumitomo Shoji, Japan Marine Ind., Niigata Engineering	Two ADS-IV diving systems and a 500-ton survey vessel	Unknown	Order accepted prior to Jan 74

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Country	Company	Equipment	Million US \$	Comments
<b>Electric Power (Continued)</b>				
	Tsurumi Precision Instruments	Two sets of testing devices to measure salt content, temperature, and depth of sea water	Unknown	Order accepted prior to Jan 74
Italy	Breda Fucine, Fucine Meridioni	Pipes, collars, kelly joints	5.6	Sold Aug 72
United States	US Geospace	Seismic field system, playback system	5.6	Oct 73
	Dresser Industries	Drill bits and associated equipment	0.5	Dec 73
	Bucyrus Erie	Drilling rigs	Unknown	Under negotiation
	Hughes Tool	Drilling bits	2.7	Late 73
	Rucker	20 Land blowout preventer stacks	2	Contract signed Dec 73

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131-170	Records Center	"	STATINTL
7, 8, 15, 10, 110, 111	C/CH	4 Apr 74	STATINTL
117-121	DDO via CRS	12 Apr 74	STATINTL
122	[REDACTED] via CRS	"	
129	CRS/DSB	17 Apr 74	STATINTL
123	Marshall Wray, State/INR/REC via CRS/DSB	22 Apr 74	STATINTL
128	U/C M		STATINTL
124	[REDACTED]	7 May 74	
	VCA CRS/DSB		STATINTL
131-140	Rec'd p. Rec	10 May 74	
125	AF/CINCPACAF/INX APO S.F. 96553 via [REDACTED] CRS/DSB	4 Jun 74	STATINTL
131	[REDACTED] NIO via [REDACTED]	14 Jan 75	STATINTL
140	[REDACTED] DSB/CRS	10 Jul 74	STATINTL
13	[REDACTED] SE/P/A	21 Aug 74	STATINTL
139	[REDACTED]	12 Sep 74	STATINTL
132	DDO, via SA/ER	5 Nov 74	STATINTL
133	[REDACTED] O/KOMPT	19 Nov 74	STATINTL
134	DD/DEF	26 Feb 75	4 Mar 75
134	[REDACTED] OBI/neo - via [REDACTED] CRS/DSB	18 Mar 75	STATINTL
4	[REDACTED]	12 Apr 75	STATINTL
128	[REDACTED]	24 Jun 75	STATINTL
135	[REDACTED] C/RE	13 Jan 76	STATINTL
6	[REDACTED] DIR-4E2/OIA via D/C	21 Apr 76	
5	[REDACTED] C/IN	24 Sep 76	
137	Destroyed	5 Jul 77	





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